

Claims

- 1- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, comprising the step of: before the reduction of the ore and/or iron-containing substances, contacting same with an amount of dispersion containing at least a material that cannot be substantially hardened in an aqueous mean and at least a material that is able to harden in the aqueous mean, thus forming an efficient coating that remains in the material even with a heavy handling of same and can reduce the formation of agglomerates in iron-making reactors.
- 10 2- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, further comprising the step of contacting an iron-containing reducible material with a dispersion of particulate materials, through dipping, spraying or sprinkling.
- 15 3- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, comprising the contact of an iron-containing reducible material with a dispersion that contains a clay or argillaceous material as the non-hardenable material and a cement as the material that can be hardened in an aqueous mean.
- 20 4- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, comprising the contact of agglomerates with an iron-containing reducible material with an effective amount of at least a particulate material that cannot be hardened in water and a material that can be hardened in water that can reduce the formation of agglomerates in the reactor.
- 25 5- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to any of claims 1 or 2 or 3 or 4, wherein the iron-containing reducible material is defined by a cold or hot agglomerate, such as pelletized, sintered, bricketed, granulated, and the like; also being defined by an ore in natural wild form, such as lump ore, granulated ore, fine ore, concentrated ore, and the like.
- 30 6- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein the

(KAB) particulate material used is of the type that cannot be hardened in an aqueous mean, and therefore a divided, finely divided and/or crushed material capable of forming a dispersion in a liquid mean, besides being substantially inert to the hardening when mixed with water.

5 7- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, comprising an aluminum compound and/or an aluminum source, such as bentonite and bauxite.

10 8- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein a particulate material based on bauxite and/or aluminum-containing clay is used. *(JL)*

15 9- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 8, wherein the aluminum-containing clay is of the type defined by the group consisting of, *(JL)* bentonite, kaolin ores, bauxite-containing kaolins, bauxite, bauxite- and gibbsite-containing clays, gibbsite, montmorillonites, chlorites, cliaquites, amorphous and variable clays, high alumina clays such as diaspor clays; wherein synthetic sodium and aluminum silicates can be used and all particulate materials can be used in either the hydrated or the non-hydrated form.

20 10- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein the particulate material used is of the type that can be hardened in an aqueous mean and the divided, finely divided and/or crushed type capable of forming a dispersion in a liquid means and can be substantially hardened when mixed with water; said particulate material being comprised of Portland cement and pozzolanic cement.

25 11- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein the size *(JL)* of the particulate material in the dispersions is determined by its type and capacity of forming a dispersion in the selected mean; the average size of the particulate material generally ranging from between 0.01 micrometer and 500

micrometers, an optimum average size ranging from between 0.05 micrometers and 100 micrometers.

12- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein the particulate material is present in a range from 0.01% by weight to approximately 2% by weight in relation to the dry base metric ton of the material to be coated.

13- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 1, wherein the particulate material is present in a typical dispersion comprising from 1 to 80% by weight of particulate material, the balance being defined by the dispersion mean, such as water.

14- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 13, wherein the particulate material is present in a typical aqueous dispersion comprising from 10% by weight to approximately 80% by weight of solid materials in water, the balance ?

15- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, according to claim 14, wherein the particulate material is present in a typical aqueous dispersion preferably comprising from approximately 5% by weight to 40% by weight of solid materials in water, the balance being defined by the dispersion mean, such as water.

16- METHOD TO INCREASE THE ADHERENCE OF COATING MATERIALS ON FERROUS MATERIALS, ^{Claim 1} according to claim 1 or 15, wherein the particulate materials are present in a dispersion wherein the ratio between the material that cannot be hardened in an aqueous mean and the material that is able to be hardened in an aqueous mean may range from approximately 5 to 40%, preferably about 20%, that is, a 1:20 ratio between the agent that can be hardened and the agent that cannot be hardened.